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Cognitive-behavioral therapy for the management of irritable bowel syndrome

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Abstract

Irritable bowel syndrome (IBS) is a common disorder, reported to be found in 5%-20% of the general population. Its management accounts for up to 25% of a gastroenterologist's workload in the outpatient department, and the main symptoms are abdominal pain, bloating, and altered bowel habits. Despite a great amount of available pharmacological treatments aimed at a wide variety of gastrointestinal and brain targets, many patients have not shown adequate symptom relief. In recent years, there has been increasing evidence to suggest that psychological treatments, in particular cognitive-behavioral therapy (CBT), are effective for the management of IBS. This review discusses CBT for the management of IBS. CBT has proved to be effective in alleviating the physical and psychological symptoms of IBS and has thus been recommended as a treatment option for the syndrome.

Key words: Cognitive-behavioral therapy; Irritable bowel syndrome; Psychological treatment

Core tip: There is increasing evidence to suggest that cognitive-behavioral therapy (CBT) is effective for the management of irritable bowel syndrome (IBS). CBT can alleviate the physical and psychological symptoms of IBS, and has thus been recommended as a treatment option for the syndrome.

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INTRODUCTION

The prevalence of irritable bowel syndrome (IBS), a functional gastrointestinal (GI) disorder defined as discomfort or pain specifically associated with an abnormal bowel habit without structural or anatomical explanation, is reported to be between 5% and 20% in the general population[1], and its management accounts for up to 25% of a gastroenterologist's workload in the outpatient department[2]. IBS affects 10%-20% of the population in developed countries[3]. It also poses a huge burden to society due to direct and indirect costs, and reduced social functioning[4-6]. The cost of health care utilization and financial loss because of work absenteeism as a result of IBS is enormous in developed countries[5,7-9]. IBS is one of the most common diseases seen in primary care and specialty GI practices[10]. An estimated 12% of primary care patients and up to half of consultations in secondary gastroenterology practices are due to IBS-related symptoms[11,12]. It was observed by a tertiary care center that 38% of IBS patients had considered suicide because of their symptoms, highlighting the severe effect of IBS

on those patients[13]. Most patients with IBS suffer from coexistent mood disorder, anxiety, and neuroticism, and are reported to have a lower quality of life than other patients with serious chronic medical conditions such as diabetes mellitus or end-stage renal disease[14,15]. The diagnosis of IBS can be made on the basis of a series of symptoms fulfilling Rome Ⅲ criteria, but in clinical practice it is still frequently made by exclusion of an organic disorder after investigation[16]. There is a multifactorial etiology[17], altered pain perception, involvement of altered gut reactivity and motility, and alteration of the brain-gut axis in IBS[18]. Psychological and social factors can influence digestive function, symptom perception, illness behavior, and outcome[19]. Therefore, effective therapies for IBS are required in order to alleviate symptoms, and to reduce consultation behavior and consumption of other valuable medical resources.

Although pharmacological therapies can temporarily relieve symptoms, they are often costly and may result in negative side effects[20]. A substantial proportion of patients with IBS do not attain adequate relief through conventional medical approaches[21]. In recent years, there has been increasing evidence to suggest that psychological treatments, in particular cognitive-behavioral therapy (CBT), are effective for the management of IBS[22]. The cognitive-behavioral model was developed in the 1960s by the American psychiatrist and psychotherapist Rush *et al*[23], who applied it first to depression and then to anxiety disorders[24]. The model aims to identify patterns of thinking and behavior which deal with problems leading to negative emotions and hindering progress towards goals. When it is applied to physical health problems, it can reduce physical symptoms by addressing behavior patterns and physiological responses. There is excellent evidence for the efficacy of CBT in reducing symptoms in patients with IBS[25].

This review provides clinicians with an updated and predominantly evidence-based review of CBT for the management of IBS. Several systematic reviews and meta-analyses recently published in high impact factor journals and some randomized controlled trials are included. A better understanding of the recommended therapeutic approaches can lead to increased patient satisfaction, as well as reduced health-care costs.

CBT AND APPLICATION TO IBS

The idea that emotions can influence the sensorimotor function of the GI tract emerged at the beginning of the 19th century, and evidence from research conducted during that period is still valid[26]. Psychological disturbance, especially in referred patients, includes psychiatric disorders (*e.g.*, panic disorder, generalized anxiety disorder, mood disorder, and post-traumatic stress disorder), sleep disturbance, and dysfunctional coping[27]. A history of childhood abuse is common[19]. It has been indicated that up to two-thirds of patients with IBS in tertiary care centers have demonstrable psychiatric illness[28-30], and that these patients have a worse prognosis than those who are psychologically normal[31]. Approximately 50% of patients with a psychiatric disorder develop the condition before the onset of gastrointestinal symptoms, and psychiatric symptoms start at the same time in most of the remaining 50%[27]. Recently, it has been demonstrated that psychosocial factors, as an indication of the process of somatization, are independent risk markers for the development of IBS in a group of subjects previously free of IBS[32], and that the effect of psychosocial factors is strongest in severely affected IBS patients[33]. On the whole, IBS patients have been reported to have more psychological disturbance than control groups with organic gastrointestinal disease or general populations[24].

There is an increasing evidence for the effectiveness of CBT in alleviating the physical and psychological symptoms of IBS[2,25,34,35] and it has thus been recommended as a treatment option for the syndrome[17,19]. CBT has matured into a creative and rigorous synergy from empirical evidence and clinical innovation[36]. In the 1970s, a group of cognitive therapists in Philadelphia led by Aaron T Beck listened cautiously to what their clients were saying and turned to learning theory and the cognitive revolution to formulate a new theoretical account and therapeutic approach to depression[23]. CBT, from its inception growing out of basic and applied research[37], remains closely tied to ongoing research[38], and is used to deal with IBS. It was designed to educate participants about physical, cognitive, and behavioral factors which contribute to IBS; thus teaching them methods of enhancing self-control over stress, anxiety, and IBS symptoms; to correct dysfunctional thoughts and to prevent symptom relapse[39]. This is helpful for refractory IBS, as it blocks the vicious circle between psychological factors and symptoms. Thus, CBT that targets psychological disturbance may alleviate IBS symptoms[40].

COMPONENTS OF CBT FOR IBS

CBT is an extremely broad concept and the psychotherapy methods described in the literature have differed in their composition. However, each of the following components are generally included.

Education about IBS

IBS is presented as a functional bowel disorder, which is more ordinary than it appears, associated with bowel function, and as a distinct disorder with real physical symptoms, including abdominal pain, distress, anxiety, disruption to lifestyle, and embarrassment. Information is provided about intestinal function in general, such as the range of normal bowel frequency, the negative effects of straining to pass a motion or ignoring the urge, ways of dealing with constipation and diarrhea, pathogenesis, and treatment and clinical efficacy of IBS. IBS is considered a biopsychological disorder in which an association between life stress described as a normal part of life and an interaction between individuals and their environment,

and physiological changes leading to bowel irregularity is present. The impact of life stress on the gastrointestinal tract is characterized, with reference to the roles of central and autonomic nervous systems and the idea of "fight or flight" responses, including bowel muscle spasm[24]. The effect of psychological factors is discussed, which clarifies that pain signals from the site of physiological disturbance or damage passing through a special mechanism to the brain, which then interprets them by combining information from various stems. Abdominal pain is experienced, and this experience is influenced by current physiological arousal, focus of attention, mood, and beliefs about abdominal pain. For example, a patient who believes that eating food in a public place will always produce diarrhea symptoms might lead to an avoidance of social interactions, as well as anxiety when dining in a restaurant. The anxiety caused by this maladaptive thought may trigger diarrhea. The therapist aims to help the patient to recognize that a maladaptive idea adversely affects normal life functioning and symptom experience.

Good maintenance of a physician-patient relationship

Effectiveness of the therapy depends on maintaining a good relation between patients and medical personnel, forming a good working relationship. Experienced physicians know that maintaining a positive therapeutic physician-patient relationship for patients with IBS is of great importance; patients who experience this positive interaction with their physician have fewer IBS-related follow-up visits than patients who do not have this interaction[41]. Patients are encouraged to speak out about their own doubts and fears, and communicate with physicians; according to the patients' problems, physicians should be able to give a detailed answer in simple terms. In fact, most patients are conscious of the origin which has caused the symptoms of IBS, but the lack of proper cognitive meaning with symptoms is common. Patients are often organized to participate in discussions, and good experiences can be shared and improves their confidence in beating IBS. During the period, physicians and nurses can detect the patient's cognitive errors, correct them in an appropriate manner, and ensure smooth treatment progression.

Stress management

It is necessary for patients with IBS to understand that it is normal that the stress response appears when people meet stress. Identifying sources of stress for the individual concerned, working with them, and developing more helpful strategies for coping with them are prerequisite. Behavioral strategies made to ease the psychological pressure caused by cognitive behavioral efforts made in the face of stress. Positive behavior can mitigate stress and be beneficial to health, while a negative response will have the opposite effect.

Planning activities and training

An increased level of planning activity, including where and when certain foods should be eaten, also lifts mood and provides more distraction from the symptoms of IBS. Self-discipline training is an effective integrated relaxation technique, as there are some physiological changes in training in accordance with wishes.

Table 1 Randomized controlled trials reviewed by Khan *et al*[17]

Ref.	Country	Sample size	Psychological therapy used
Lackner *et al*[35]	United States	75	CBT
Lackner *et al*[42]	United States	71	CBT
Reme *et al*[43]	United States	149	CBT

CBT: Cognitive-behavioral therapy.

Table 2 Randomized controlled trials reviewed by Ford *et al*[2] (not including the trials described in Table 1)

Ref.	Country	Sample size	Psychological therapy used
Greene *et al*[45]	United States	20	CBT
Payne *et al*[46]	United States	22	CBT
Vollmer *et al*[48]	United States	34	CBT
Boyce *et al*[50]	Australia	105	CBT
Drossman *et al*[44]	United States	169	CBT
Tkachuk *et al*[47]	Canada	28	CBT
Kennedy *et al*[49]	England	149	CBT

CBT: Cognitive-behavioral therapy.

EVIDENCE FOR TREATMENT EFFICACY OF CBT

Khan *et al*[17] provide a useful review of the literature. Of the three controlled studies of patients with severe IBS, they noted that those in the CBT group showed reduced gastrointestinal symptoms and psychological distress to a greater extent than those in the control group. More details are given in Table 1.

A systematic review and meta-analysis carried out by Ford *et al*[2] was not included in this review. There were seven studies which compared CBT with control therapy or physicians' "usual management" in 491 patients[44-50]. IBS symptoms persisted in 118 of 279 individuals assigned to CBT, compared to 130 of 212 allocated to control therapy or physicians' "usual management". There was statistically significant heterogeneity and evidence among those studies, with small-sample studies showing no effect of CBT on IBS symptoms. When three studies conducted in the same center were excluded from the meta-analysis, the beneficial effect of CBT on IBS symptoms disappeared. More details are given in Table 2. Finally, they demonstrated that a range of different psychological therapies could significantly improve physical symptoms in IBS patients, with studies on CBT providing the greatest evidence.

For IBS, CBT has been studied more than any other form of psychological intervention in randomized controlled trials. In a recent review by Palsson *et al*[51], CBT outcomes for IBS treatment were compared with control

Table 3 Randomized controlled trials reviewed by Palsson *et al*[51] (not including the trials described in Tables 1 and 2)

Ref.	Country	Sample size	Psychological therapy used
Lynch *et al*[52]	Canada	21	CBT
Heymann-Monnikes *et al*[53]	Germany	20	CBT
Sanders *et al*[54]	United States	28	CBT
Hunt *et al*[55]	United States	54	CBT
Moss-Morris *et al*[56]	England	64	CBT
Craske *et al*[40]	United States	110	CBT
Ljotsson *et al*[57]	Sweden	195	CBT
Ljotsson *et al*[58]	Sweden	61	CBT
Oerlemans *et al*[59]	The Netherlands	75	CBT

CBT: Cognitive-behavioral therapy.

groups receiving usual medical care or on waiting lists for treatment, antidepressant or antispasmodic medication, placebo, or active psychological interventions such as supportive therapy, education, or stress management treatment. The substantial body of those studies demonstrates that CBT is an effective therapy for improving IBS. In the positive trials, gastrointestinal symptoms were almost uniformly found to be significantly ameliorated after treatment, sometimes substantially more than in control groups. Michelle *et al*[40] examined the efficacy of a CBT protocol for the treatment of IBS, which directly targeted visceral sensations. Participants (n = 110) were randomized to receive 10 sessions of either: (1) CBT with interoceptive exposure to visceral sensations (IE); (2) stress management (SM); or (3) an attention control (AC), and were evaluated at baseline, mid-treatment, post-treatment, and follow-up sessions. The results showed that the IE group outperformed AC on several indices of outcome, and outperformed SM in some domains. There was no difference observed between SM and AC. The results suggested that IE might be a particularly efficacious treatment for IBS. In spite of the fact that the majority of studies did not include any follow-up longer than 3 mo after medical treatment, there is some evidence that the therapeutic benefit of CBT for IBS can last 8 mo to 2 years after treatment termination. Apart from gastrointestinal symptom improvement, quality of life and emotional well-being are often documented to improve significantly from such therapy as well. More details are given in Table 3.

POTENTIAL PROBLEMS

Although CBT is considered the most well-studied psychological treatment for IBS[10], it is rarely available in routine care of IBS[60], and delivering the treatment may be cumbersome[12]. There is no evidence that patients' attributions for their illness and expectations/preferences for intervention influence the efficacy in any treatment. It is suggested that some patients do not understand the cognitive behavior model as applying to them and are thus unlikely to engage in CBT[61]. As this is a therapy which makes significant demands on patients' time, some will not feel able to make this commitment. Several problematic factors are a lack of trained therapists, high costs of delivering the treatment, and the practical difficulties for patients of scheduling weekly visits at a clinic[62,63]. Some modifications to the traditional CBT format have been evaluated by researchers, and these studies have demonstrated that CBT-based interventions can be delivered in different, and more cost-effective, formats[63,64]. Some clinicians have conducted studies investigating CBT for IBS where participants had a therapist contact *via* the internet (ICBT), defined as a web-based bibliotherapy with an online therapist contact. ICBT proved to be a promising cost-effective treatment modality for IBS, as it can be offered to IBS patients on a much larger scale than conventional psychological treatments[58,65]. Among gastroenterologists, development and testing of a CBT program for IBS has the potential to make it more widely available for IBS.

CONCLUSION

IBS is a prevalent chronic relapsing condition that is regularly associated with significant disability and has a considerable financial burden for the health service due to the consumption of resources including physician time, investigations, and costs of treatment[66]. The presence of clinically significant psychiatric symptoms in patients with IBS is an indication for psychotherapy, especially CBT. Although the availability of therapists who are trained in CBT and have specialist experience in IBS is limited, even when specialist referral is not an option, CBT has implications for gastroenterologists' own clinical practice. There is increasing evidence for the efficacy of CBT in alleviating the physical and psychological symptoms of IBS, and it has been recommended that it should be considered as a treatment option for the syndrome[28]. CBT is most appropriately offered to patients who have already had reasonable medical investigations but still have significant physical discomfort and psychological distress, and are interested in taking an active part in achieving greater control over their symptoms.

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